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SEQUENCE LISTING

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<120> VECTORS BASED ON RECOMBINANT DEFECTIVE VIRAL GENOMES,
AND THEIR USE IN THE FORMULATION OF VACCINES

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<151> 1997-03-12

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<170> PatentIn Ver. 2.1

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attaagaaga tggttaccag atgatgccat attggttgat aatgatttga gagattacgt 8615
ttccgacgca gacttcagtg ttacagggtga ttgtactagt ctttacatcg aagacaagtt 8675
tgatttgctc gtctctgatt tatatgatgg ctccacaaaa tcaattgacg gtgaaaacac 8735
gtcgaaagat ggtttcttta cttatattaa tggtttcatt aaagagaaac tgtcacttgg 8795
tggatctggt gccattaaaa tcacggaatt tagttggaat aaagatttat atgaattgat 8855
tcaaagattt gagtattgga ctgtgttttg tacaagtgtt aacacgtcat catcagaagg 8915
ctttctgatt ggtattaact acttaggacc atactgtgac aaagcaatag tagatggaaa 8975
tataatgcat gccaattata tatttttgag aaactctaca attatggctc tatcacataa 9035
ctcagtccta gacactccta aattcaagtg tcgttgtaac aacgcactta ttgttaattt 9095
aaaagaaaaa gaattgaatg aaatgggtcat tggattacta aggaagggtg agttgctcat 9155
tagaaataat ggtaagttac taaacttttg taaccacttc gttaacacac catgaaaaaa 9215
tgctgtattt attacagttt taatcttact actaattggg agactccaat tattagaaag 9275
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gagtttagca gaaaccagat tactaaaagt ggtgcttcga gtaatctttc tagtcttact 9395
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tggtttttcc gaggaattac tggtcacgc gctgtctact cttgtacaga atggtaagca 9515
cgtgtaatag gaggtacaag caaccctatt gcatattagg aagtttagat ttgatttggc 9575
aatgctagat ttagtaattt agagaagttt aaagatccgc tacgacgagc caacaatgga 9635
agagctaacg tctggatcta gtgattgttt aaaatgtaaa attgtttgaa aattttcctt 9695
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<210> 25

<211> 667

<212> PRT

<213> Transmissible gastroenteritis coronavirus

<220>

<221> MOD_RES

<222> (108)

<223> Gly or Val

13

<400> 25

Met	Ser	Ser	Lys	Gln	Phe	Lys	Ile	Leu	Val	Asn	Glu	Asp	Tyr	Gln	Val	1	5	10	15
Asn	Val	Pro	Ser	Leu	Pro	Ile	Arg	Asp	Val	Leu	Gln	Glu	Ile	Lys	Tyr	20	25	30	
Cys	Tyr	Arg	Asn	Gly	Phe	Glu	Gly	Tyr	Val	Phe	Val	Pro	Glu	Tyr	Cys	35	40	45	
Arg	Asp	Leu	Val	Asp	Cys	Asp	Arg	Lys	Asp	His	Tyr	Val	Ile	Gly	Val	50	55	60	
Leu	Gly	Asn	Gly	Val	Ser	Asp	Leu	Lys	Pro	Val	Leu	Leu	Thr	Glu	Pro	65	70	75	80
Ser	Val	Met	Leu	Gln	Gly	Phe	Ile	Val	Arg	Ala	Asn	Cys	Asn	Gly	Val	85	90	95	
Leu	Glu	Asp	Phe	Asp	Leu	Lys	Ile	Ala	Arg	Thr	Xaa	Arg	Gly	Ala	Ile	100	105	110	
Tyr	Val	Asp	Gln	Tyr	Met	Cys	Gly	Ala	Asp	Gly	Lys	Pro	Val	Ile	Glu	115	120	125	
Gly	Asp	Phe	Lys	Asp	Tyr	Phe	Gly	Asp	Glu	Asp	Ile	Ile	Glu	Phe	Glu	130	135	140	
Gly	Glu	Glu	Tyr	His	Cys	Ala	Trp	Thr	Thr	Val	Arg	Asp	Glu	Lys	Pro	145	150	155	160
Leu	Asn	Gln	Gln	Thr	Leu	Phe	Thr	Ile	Gln	Glu	Ile	Gln	Tyr	Asn	Leu	165	170	175	
Asp	Ile	Pro	His	Lys	Leu	Pro	Asn	Cys	Ala	Thr	Arg	His	Val	Ala	Pro	180	185	190	
Pro	Val	Lys	Lys	Asn	Ser	Lys	Ile	Val	Leu	Ser	Glu	Asp	Tyr	Lys	Lys	195	200	205	
Leu	Tyr	Asp	Ile	Phe	Gly	Ser	Pro	Phe	Met	Gly	Asn	Gly	Asp	Cys	Leu	210	215	220	
Ser	Lys	Cys	Phe	Asp	Thr	Leu	His	Phe	Ile	Ala	Ala	Thr	Leu	Arg	Cys	225	230	235	240
Pro	Cys	Gly	Ser	Glu	Ser	Ser	Gly	Val	Gly	Asp	Trp	Thr	Gly	Phe	Lys	245	250	255	
Thr	Ala	Cys	Cys	Gly	Leu	Ser	Gly	Lys	Val	Lys	Gly	Val	Thr	Leu	Gly	260	265	270	
Asp	Ile	Lys	Pro	Gly	Asp	Ala	Val	Val	Thr	Ser	Met	Ser	Ala	Gly	Lys	275	280	285	
Gly	Val	Lys	Phe	Phe	Ala	Asn	Cys	Val	Leu	Gln	Tyr	Ala	Gly	Asp	Val	290	295	300	

Glu	Gly	Val	Ser	Ile	Trp	Lys	Val	Ile	Lys	Thr	Phe	Thr	Val	Asp	Glu
305					310					315					320
Thr	Val	Cys	Thr	Pro	Gly	Phe	Glu	Gly	Glu	Leu	Asn	Asp	Phe	Ile	Lys
				325					330					335	
Pro	Glu	Ser	Lys	Ser	Leu	Val	Ala	Cys	Ser	Val	Lys	Arg	Ala	Phe	Ile
			340					345					350		
Thr	Gly	Asp	Ile	Asp	Asp	Ala	Val	His	Asp	Cys	Ile	Ile	Thr	Gly	Lys
		355					360					365			
Leu	Asp	Leu	Ser	Thr	Asn	Leu	Phe	Gly	Asn	Val	Gly	Leu	Leu	Phe	Lys
	370					375					380				
Lys	Thr	Pro	Trp	Phe	Val	Gln	Lys	Cys	Gly	Ala	Leu	Phe	Val	Asp	Ala
385					390					395					400
Trp	Lys	Val	Val	Glu	Glu	Leu	Cys	Gly	Ser	Leu	Thr	Leu	Thr	Tyr	Lys
				405					410					415	
Gln	Ile	Tyr	Glu	Val	Val	Ala	Ser	Leu	Cys	Thr	Ser	Ala	Phe	Thr	Ile
			420					425					430		
Val	Asn	Tyr	Lys	Pro	Thr	Phe	Val	Val	Pro	Asp	Asn	Arg	Val	Lys	Asp
		435					440					445			
Leu	Val	Asp	Lys	Cys	Val	Lys	Val	Leu	Val	Lys	Ala	Phe	Asp	Val	Phe
	450					455					460				
Thr	Gln	Ile	Ile	Thr	Ile	Ala	Gly	Ile	Glu	Ala	Lys	Cys	Phe	Val	Leu
465					470					475					480
Gly	Ala	Lys	Tyr	Leu	Leu	Phe	Asn	Asn	Ala	Leu	Val	Lys	Leu	Val	Ser
				485					490					495	
Val	Lys	Ile	Leu	Gly	Lys	Lys	Gln	Lys	Gly	Leu	Glu	Cys	Ala	Phe	Phe
			500					505					510		
Ala	Thr	Ser	Leu	Val	Gly	Ala	Thr	Val	Asn	Val	Thr	Pro	Lys	Arg	Thr
		515					520					525			
Glu	Thr	Ala	Thr	Ile	Ser	Leu	Asn	Lys	Val	Asp	Asp	Val	Val	Ala	Pro
		530				535					540				
Gly	Glu	Gly	Tyr	Ile	Val	Ile	Val	Gly	Asp	Met	Ala	Phe	Tyr	Lys	Ser
545					550					555					560
Gly	Glu	Tyr	Tyr	Phe	Met	Met	Ser	Ser	Pro	Asn	Phe	Val	Leu	Thr	Asn
				565					570					575	
Asn	Val	Phe	Lys	Ala	Val	Lys	Val	Pro	Ser	Tyr	Asp	Ile	Val	Tyr	Asp
			580					585					590		
Val	Asp	Asn	Asp	Thr	Lys	Ser	Lys	Met	Ile	Ala	Lys	Leu	Gly	Ser	Ser
		595					600					605			

15

Phe	Glu	Gln	Ile	Pro	Thr	Gly	Thr	Gln	Asp	Pro	Ile	Arg	Phe	Cys	Ile
610						615					620				
Glu	Asn	Glu	Val	Cys	Val	Val	Cys	Gly	Cys	Trp	Leu	Asn	Asn	Gly	Cys
625					630					635					640
Met	Cys	Asp	Arg	Thr	Ser	Met	Gln	Ser	Phe	Thr	Val	Asp	Gln	Ser	Tyr
				645					650					655	
Leu	Asn	Glu	Cys	Gly	Val	Leu	Val	Gln	Leu	Asp					
			660					665							

<210> 26
 <211> 1470
 <212> PRT
 <213> Transmissible gastroenteritis coronavirus

<220>
 <221> MOD_RES
 <222> (1405)
 <223> Ile or Val

<400> 26

Ser	Lys	Leu	Phe	Lys	Arg	Val	Arg	Gly	Ser	Ser	Ala	Ala	Arg	Leu	Glu
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Pro	Cys	Asn	Gly	Thr	Asp	Pro	Asp	His	Val	Ser	Arg	Ala	Phe	Asp	Ile
			20					25					30		
Tyr	Asn	Lys	Asp	Val	Ala	Cys	Ile	Gly	Lys	Phe	Leu	Lys	Thr	Asn	Cys
	35						40					45			
Ser	Arg	Phe	Arg	Asn	Leu	Asp	Lys	His	Asp	Ala	Tyr	Tyr	Ile	Val	Lys
	50					55					60				
Arg	Cys	Thr	Lys	Thr	Val	Met	Asp	His	Glu	Gln	Val	Cys	Tyr	Asn	Asp
	65				70					75					80
Leu	Lys	Asp	Ser	Gly	Ala	Val	Ala	Glu	His	Asp	Phe	Phe	Thr	Tyr	Lys
				85					90					95	
Glu	Gly	Arg	Cys	Glu	Phe	Gly	Asn	Val	Ala	Arg	Arg	Asn	Leu	Thr	Lys
			100					105					110		
Tyr	Thr	Met	Met	Asp	Leu	Cys	Tyr	Ala	Ile	Arg	Asn	Phe	Asp	Glu	Lys
		115					120					125			
Asn	Cys	Glu	Val	Leu	Lys	Glu	Ile	Leu	Val	Thr	Val	Gly	Ala	Cys	Thr
		130				135					140				
Glu	Glu	Phe	Phe	Glu	Asn	Lys	Asp	Trp	Phe	Asp	Pro	Val	Glu	Asn	Glu
145					150					155					160
Ala	Ile	His	Glu	Val	Tyr	Ala	Lys	Leu	Gly	Pro	Ile	Val	Ala	Asn	Ala
				165					170					175	

16

Met	Leu	Lys	Cys	Val	Ala	Phe	Cys	Asp	Ala	Ile	Val	Glu	Lys	Gly	Tyr	180	185	190
Ile	Gly	Val	Ile	Thr	Leu	Asp	Asn	Gln	Asp	Leu	Asn	Gly	Asn	Phe	Tyr	195	200	205
Asp	Phe	Gly	Asp	Phe	Val	Lys	Thr	Ala	Pro	Gly	Phe	Gly	Cys	Ala	Cys	210	215	220
Val	Thr	Ser	Tyr	Tyr	Ser	Tyr	Met	Met	Pro	Leu	Met	Gly	Met	Thr	Ser	225	230	235
Cys	Leu	Glu	Ser	Glu	Asn	Phe	Val	Lys	Ser	Asp	Ile	Tyr	Gly	Ser	Asp	245	250	255
Tyr	Lys	Gln	Tyr	Asp	Leu	Leu	Ala	Tyr	Asp	Phe	Thr	Glu	His	Lys	Glu	260	265	270
Tyr	Leu	Phe	Gln	Lys	Tyr	Phe	Lys	Tyr	Trp	Asp	Arg	Thr	Tyr	His	Pro	275	280	285
Asn	Cys	Ser	Asp	Cys	Thr	Ser	Asp	Glu	Cys	Ile	Ile	His	Cys	Ala	Asn	290	295	300
Phe	Asn	Thr	Leu	Phe	Ser	Met	Thr	Ile	Pro	Met	Thr	Ala	Phe	Gly	Pro	305	310	315
Leu	Val	Arg	Lys	Val	His	Ile	Asp	Gly	Val	Pro	Val	Val	Val	Thr	Ala	325	330	335
Gly	Tyr	His	Phe	Lys	Gln	Leu	Gly	Ile	Val	Trp	Asn	Leu	Asp	Val	Lys	340	345	350
Leu	Asp	Thr	Met	Lys	Leu	Ser	Met	Thr	Asp	Leu	Leu	Arg	Phe	Val	Thr	355	360	365
Asp	Pro	Thr	Leu	Leu	Val	Ala	Ser	Ser	Pro	Ala	Leu	Leu	Asp	Gln	Arg	370	375	380
Thr	Val	Cys	Phe	Ser	Ile	Ala	Ala	Leu	Ser	Thr	Gly	Ile	Thr	Tyr	Gln	385	390	395
Thr	Val	Lys	Pro	Gly	His	Phe	Asn	Lys	Asp	Phe	Tyr	Asp	Phe	Ile	Thr	405	410	415
Glu	Arg	Gly	Phe	Phe	Glu	Glu	Gly	Ser	Glu	Leu	Thr	Leu	Lys	His	Phe	420	425	430
Phe	Phe	Ala	Gln	Gly	Gly	Glu	Ala	Ala	Met	Thr	Asp	Phe	Asn	Tyr	Tyr	435	440	445
Arg	Tyr	Asn	Arg	Val	Thr	Val	Leu	Asp	Ile	Cys	Gln	Ala	Gln	Phe	Val	450	455	460
Tyr	Lys	Ile	Val	Gly	Lys	Tyr	Phe	Glu	Cys	Tyr	Asp	Gly	Gly	Cys	Ile	465	470	475
																		480

17

Asn	Ala	Arg	Glu	Val	Val	Val	Thr	Asn	Tyr	Asp	Lys	Ser	Ala	Gly	Tyr	
				485					490					495		
Pro	Leu	Asn	Lys	Phe	Gly	Lys	Ala	Arg	Leu	Tyr	Tyr	Glu	Thr	Leu	Ser	
			500					505					510			
Tyr	Glu	Glu	Gln	Asp	Ala	Leu	Phe	Ala	Leu	Thr	Lys	Arg	Asn	Val	Leu	
		515					520					525				
Pro	Thr	Met	Thr	Gln	Met	Asn	Leu	Lys	Tyr	Ala	Ile	Ser	Gly	Lys	Ala	
	530					535					540					
Arg	Ala	Arg	Thr	Val	Gly	Gly	Val	Ser	Leu	Leu	Ser	Thr	Met	Thr	Thr	
545					550					555					560	
Arg	Gln	Tyr	His	Gln	Lys	His	Leu	Lys	Ser	Ile	Ala	Ala	Thr	Arg	Asn	
				565					570					575		
Ala	Thr	Val	Val	Ile	Gly	Ser	Thr	Lys	Phe	Tyr	Gly	Gly	Trp	Asp	Asn	
			580					585					590			
Met	Leu	Lys	Asn	Leu	Met	Arg	Asp	Val	Asp	Asn	Gly	Cys	Leu	Met	Gly	
		595					600					605				
Trp	Asp	Tyr	Pro	Lys	Cys	Asp	Arg	Ala	Leu	Pro	Asn	Met	Ile	Arg	Met	
	610					615					620					
Ala	Ser	Ala	Met	Ile	Leu	Gly	Ser	Lys	His	Val	Gly	Cys	Cys	Thr	His	
625					630					635					640	
Asn	Asp	Arg	Phe	Tyr	Arg	Leu	Ser	Asn	Glu	Leu	Ala	Gln	Val	Leu	Thr	
			645						650					655		
Glu	Val	Val	His	Cys	Thr	Gly	Gly	Phe	Tyr	Phe	Lys	Pro	Gly	Gly	Thr	
			660					665					670			
Thr	Ser	Gly	Asp	Gly	Thr	Thr	Ala	Tyr	Ala	Asn	Ser	Ala	Phe	Asn	Ile	
		675					680					685				
Phe	Gln	Ala	Val	Ser	Ala	Asn	Val	Asn	Lys	Leu	Leu	Gly	Val	Asp	Ser	
	690					695					700					
Asn	Ala	Cys	Asn	Asn	Val	Thr	Val	Lys	Ser	Ile	Gln	Arg	Lys	Ile	Tyr	
705					710					715				720		
Asp	Asn	Cys	Tyr	Arg	Ser	Ser	Ser	Ile	Asp	Glu	Glu	Phe	Val	Val	Glu	
				725					730					735		
Tyr	Phe	Ser	Tyr	Leu	Arg	Lys	His	Phe	Ser	Met	Met	Ile	Leu	Ser	Asp	
			740					745					750			
Asp	Gly	Val	Val	Cys	Tyr	Asn	Lys	Asp	Tyr	Ala	Asp	Leu	Gly	Tyr	Val	
		755					760					765				
Ala	Asp	Ile	Asn	Ala	Phe	Lys	Ala	Thr	Leu	Tyr	Tyr	Gln	Asn	Asn	Val	
	770					775					780					

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Phe	Met	Ser	Thr	Ser	Lys	Cys	Trp	Val	Glu	Pro	Asp	Leu	Ser	Val	Gly	785	790	795	800
Pro	His	Glu	Phe	Cys	Ser	Gln	His	Thr	Leu	Gln	Ile	Val	Gly	Pro	Asp	805	810	815	
Gly	Asp	Tyr	Tyr	Leu	Pro	Tyr	Pro	Asp	Pro	Ser	Arg	Ile	Leu	Ser	Ala	820	825	830	
Gly	Val	Phe	Val	Asp	Asp	Ile	Val	Lys	Thr	Asp	Asn	Val	Ile	Met	Leu	835	840	845	
Glu	Arg	Tyr	Val	Ser	Leu	Ala	Ile	Asp	Ala	Tyr	Pro	Leu	Thr	Lys	His	850	855	860	
Pro	Lys	Pro	Ala	Tyr	Gln	Lys	Val	Phe	Tyr	Thr	Leu	Leu	Asp	Trp	Val	865	870	875	880
Lys	His	Leu	Gln	Lys	Asn	Leu	Asn	Ala	Gly	Val	Leu	Asp	Ser	Phe	Ser	885	890	895	
Val	Thr	Met	Leu	Glu	Glu	Gly	Gln	Asp	Lys	Phe	Trp	Ser	Glu	Glu	Phe	900	905	910	
Tyr	Ala	Ser	Leu	Tyr	Glu	Lys	Ser	Thr	Val	Leu	Gln	Ala	Ala	Gly	Met	915	920	925	
Cys	Val	Val	Cys	Gly	Ser	Gln	Thr	Val	Leu	Arg	Cys	Gly	Asp	Cys	Leu	930	935	940	
Arg	Arg	Pro	Leu	Leu	Cys	Thr	Lys	Cys	Ala	Tyr	Asp	His	Val	Met	Gly	945	950	955	960
Thr	Lys	His	Lys	Phe	Ile	Met	Ser	Ile	Thr	Pro	Tyr	Val	Cys	Ser	Phe	965	970	975	
Asn	Gly	Cys	Asn	Val	Asn	Asp	Val	Thr	Lys	Leu	Phe	Leu	Gly	Gly	Leu	980	985	990	
Ser	Tyr	Tyr	Cys	Met	Asn	His	Lys	Pro	Gln	Leu	Ser	Phe	Pro	Leu	Cys	995	1000	1005	
Ala	Asn	Gly	Asn	Val	Phe	Gly	Leu	Tyr	Lys	Ser	Ser	Ala	Val	Gly	Ser	1010	1015	1020	
Glu	Ala	Val	Glu	Asp	Phe	Asn	Lys	Leu	Ala	Val	Ser	Asp	Trp	Thr	Asn	1025	1030	1035	1040
Val	Glu	Asp	Tyr	Lys	Leu	Ala	Asn	Asn	Val	Lys	Glu	Ser	Leu	Lys	Ile	1045	1050	1055	
Phe	Ala	Ala	Glu	Thr	Val	Lys	Ala	Lys	Glu	Glu	Ser	Val	Lys	Ser	Glu	1060	1065	1070	
Tyr	Ala	Tyr	Ala	Val	Leu	Lys	Glu	Val	Ile	Gly	Pro	Lys	Glu	Ile	Val	1075	1080	1085	

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Leu	Gln	Trp	Glu	Ala	Ser	Lys	Thr	Lys	Pro	Pro	Leu	Asn	Arg	Asn	Ser	1090	1095	1100	
Val	Phe	Thr	Cys	Phe	Gln	Ile	Ser	Lys	Asp	Thr	Lys	Ile	Gln	Leu	Gly	1105	1110	1115	1120
Glu	Phe	Val	Phe	Glu	Gln	Ser	Glu	Tyr	Gly	Ser	Asp	Ser	Val	Tyr	Tyr	1125	1130	1135	
Lys	Ser	Thr	Ser	Thr	Tyr	Lys	Leu	Thr	Pro	Gly	Met	Ile	Phe	Val	Leu	1140	1145	1150	
Thr	Ser	His	Asn	Val	Ser	Pro	Leu	Lys	Ala	Pro	Ile	Leu	Val	Asn	Gln	1155	1160	1165	
Glu	Lys	Tyr	Asn	Thr	Ile	Ser	Lys	Leu	Tyr	Pro	Val	Phe	Asn	Ile	Ala	1170	1175	1180	
Glu	Ala	Tyr	Asn	Thr	Leu	Val	Pro	Tyr	Tyr	Gln	Met	Ile	Gly	Lys	Gln	1185	1190	1195	1200
Lys	Phe	Thr	Thr	Ile	Gln	Gly	Pro	Pro	Gly	Ser	Gly	Lys	Ser	His	Cys	1205	1210	1215	
Val	Ile	Gly	Leu	Gly	Leu	Tyr	Tyr	Pro	Gln	Ala	Arg	Ile	Val	Tyr	Thr	1220	1225	1230	
Ala	Cys	Ser	His	Ala	Ala	Val	Asp	Ala	Leu	Cys	Glu	Lys	Ala	Ala	Lys	1235	1240	1245	
Asn	Phe	Asn	Val	Asp	Arg	Cys	Ser	Arg	Ile	Ile	Pro	Gln	Arg	Ile	Arg	1250	1255	1260	
Val	Asp	Cys	Tyr	Thr	Gly	Phe	Lys	Pro	Asn	Asn	Thr	Asn	Ala	Gln	Tyr	1265	1270	1275	1280
Leu	Phe	Cys	Thr	Val	Asn	Ala	Leu	Pro	Glu	Ala	Ser	Cys	Asp	Ile	Val	1285	1290	1295	
Val	Val	Asp	Glu	Val	Ser	Met	Cys	Thr	Asn	Tyr	Asp	Leu	Ser	Val	Ile	1300	1305	1310	
Asn	Ser	Arg	Leu	Ser	Tyr	Lys	His	Ile	Val	Tyr	Val	Gly	Asp	Pro	Gln	1315	1320	1325	
Gln	Leu	Pro	Ala	Pro	Arg	Thr	Leu	Ile	Asn	Lys	Gly	Val	Leu	Gln	Pro	1330	1335	1340	
Gln	Asp	Tyr	Asn	Val	Val	Thr	Lys	Arg	Met	Cys	Thr	Leu	Gly	Pro	Asp	1345	1350	1355	1360
Val	Phe	Leu	His	Lys	Cys	Tyr	Arg	Cys	Pro	Ala	Glu	Ile	Val	Lys	Thr	1365	1370	1375	
Val	Ser	Ala	Leu	Val	Tyr	Glu	Asn	Lys	Phe	Val	Pro	Val	Asn	Pro	Glu	1380	1385	1390	

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Ser Lys Gln Cys Phe Lys Met Phe Val Lys Gly Gln Xaa Gln Ile Glu
1395 1400 1405

Ser Asn Ser Ser Ile Asn Asn Lys Gln Leu Glu Val Val Lys Ala Phe
1410 1415 1420

Leu Ala His Asn Pro Lys Trp Arg Lys Ala Val Phe Ile Ser Pro Tyr
1425 1430 1435 1440

Asn Ser Gln Asn Tyr Val Ala Arg Arg Leu Leu Gly Leu Gln Thr Gln
1445 1450 1455

Thr Val Asp Ser Ala Gln Gly Ser Glu Tyr Asp Tyr Val Ile
1460 1465 1470

<210> 27

<211> 16

<212> PRT

<213> Transmissible gastroenteritis coronavirus

<400> 27

Met Lys Lys Cys Cys Ile Tyr Tyr Ser Phe Asn Leu Thr Thr Asn Trp
1 5 10 15

<210> 28

<211> 95

<212> RNA

<213> Transmissible gastroenteritis coronavirus

<400> 28

uuuaaacgag ugcgggguuc uagugcagcu cgacuagaac ccugcaaugg uacugaucca 60
gaccauguua guagagcuu ugacaucuac aacaa 95

<210> 29

<211> 207

<212> RNA

<213> Transmissible gastroenteritis coronavirus

<220>

<221> modified_base

<222> (57)..(198)

<223> a, u, c, g, other or unknown

<400> 29

uuuaaacgag ugcgggguuc uagugcagcu cgacuagaac ccugcaaugg uacugannnn 60
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 120
nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn 180
nnnnnnnnnn nnnnnnnngu uaggac 207

<210> 30

<211> 19

<212> RNA

<213> Transmissible gastroenteritis coronavirus

21

<400> 30
caugagcaag ucuguuaua

19

<210> 31
<211> 20
<212> DNA
<213> Transmissible gastroenteritis coronavirus

<400> 31
taatacgact cactataggg

20

<210> 32
<211> 19
<212> DNA
<213> Transmissible gastroenteritis coronavirus

<400> 32
aaaaaaaggg tcggcatgg

19